REMARKS/ARGUMENTS

In the Office Action issued March 26, 2007, claims 18, 20, 21, 23-25, and 27-30 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,228,854 to Eldridge ("Eldridge") in view of U.S. Patent No. 5,631,830 to Schroeder ("Schroeder"). Claims 22 and 26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Eldridge in view of Schroeder, and further in view of Phillips (Feedback Control Systems, 3rd ed.) ("Phillips"). Claims 23 and 24 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter.

Claims 18 and 20-30 are now pending in this application. The Abstract has been amended as requested by the Examiner. Claims 18, 23, and 27 have been amended to clarify the subject matter that the applicant considers to be the invention. No new matter has been added.

Regarding the rejection of claims 23 and 24 under 35 USC §101, claim 23 has been amended to recite using the generated signal representing a deviation of the simulated target seeker from a commanded position of the simulated target seeker to control the simulated target seeker, which is a further method step that uses the generated signal. Thus, the applicant submits that the rejection under 35 USC §101 has been overcome.

The applicant respectfully submits that claims 18, 20, 21, 23-25, and 27-30 are not unpatentable over Eldridge in view of Schroeder. Eldridge relates to a combat training system for use with two aircraft, an attacking aircraft 20 and a target aircraft 30. The attacking aircraft 20 comprises an attacking pod 21 which is fed with ordnance information, such as type of ordnance, initial direction and velocity of a simulated missile

or other ordnance fired from the attacking aircraft, and lock-on information from a fire control system of the attacking aircraft 20. The information from the attacking pod 21 is transmitted to a target pod 31 of the target aircraft 30 (col. 5, lines 40-47).

The target pod 31 calculates a missile trajectory compatible with the original launch conditions and the target aircraft position history from the time of launch until the missile would have passed a plane of the target aircraft, using a missile model (col. 5, lines 57-66). The simulated missile can be arranged to be partly guided by the radar of the attacking aircraft 20. For these types of ordnance, the attack pod 21 would transmit position and status of the attacking aircraft after launch (col. 6, lines 5-9).

Schroeder discloses a conventional missile control system for use in an actual missile. Schroeder does not disclose or suggest simulation of a missile.

By contrast, claim 18, for example, requires simulating a missile by means of a missile simulator in a single aircraft during testing of the single aircraft which includes a weapon system for controlling missiles with which the aircraft may be equipped. Eldridge discloses a training system for training between two aircraft, but does not disclose or suggest simulating a missile by means of a missile simulator in a single aircraft during testing of the single aircraft. Schroeder discloses an actual missile, which can only be used when two aircraft are involved. Therefore, the combination of Eldridge and Schroeder does not disclose a missile simulator in a single aircraft for use during testing of a single aircraft.

Claim 18 requires receiving the target seeker command position at the weapon system. Neither Eldridge, nor Schroeder, nor the combination of Eldridge and Schroeder discloses or suggests this step. Rather, Eldridge discloses receiving lock-on information

directly from the attack aircraft. The lock-on information disclosed by Eldridge is not the same as the required target seeker command position. As is well-known, lock-on information indicates whether a missile's seeker is locked on a target. This is different than the target seeker command position, which is a command indicating to the simulated target seeker a position that the target seeker should have.

Claim 18 requires simulating behavior of the missile in a computer model in the missile simulator, which is in the single aircraft, to generate an actual value signal adapted to the weapon system. Neither Eldridge, nor Schroeder, nor the combination of Eldridge and Schroeder discloses or suggests this step. Rather, Eldridge discloses a missile model in a remote location and not in the launching or attacking aircraft. Schroeder discloses an actual missile, not a missile simulation. The combination of Eldridge and Schroeder discloses a missile or missile model in a remote location or in a missile, not the missile simulator in the single aircraft, as is required by claim 18.

Claim 18 requires generating in the weapon system a trouble signal from a deviation between the target seeker command position and the actual value signal, wherein the trouble signal is measured continuously and wherein sampled values for a vector indicating error in amplitude (A) and error in phase angle (φ), which represent a difference between a vector SC corresponding to the target seeker command position and a vector SO corresponding to the actual value signal, are determined and sent to the computer model in the missile simulator, and wherein the values for A and φ are determined by correlating measured results with known desired results. Eldridge does not disclose or suggest this step or any similar signal that is generated using the required inputs. Schroeder discloses generating signals within the missile to control the missile,

but does not disclose or suggest generating any signals in the aircraft weapon system, as is required by the present invention. These signals generated by Schroeder are used to control the actual missile, not to generate inputs to a missile simulation, as is required by claim 18.

Claim 18 requires using the trouble signal as a control signal for the simulated target seeker. Eldridge does not disclose or suggest this step since Eldridge does not disclose or suggest a trouble signal or any similar signal that is generated using the required inputs. Likewise, Eldridge does not disclose or suggest a control signal or any similar signal that is generated using the required inputs. Schroeder discloses generating signals within the missile to control the missile, but does not disclose or suggest generating any signals in the aircraft weapon system, as is required by the present invention. These signals generated by Schroeder are used to control the actual missile, not to generate inputs to a missile simulation.

Thus, even if Eldridge and Schroeder were combined, the result would still not have a missile simulation in a single aircraft controlled by a target seeker that is used for testing of the single aircraft. The missile of Eldridge does not have a target seeker and the aircraft from which it is launched does not comprise a model of the missile controlled by a target seeker. In addition, the system of Eldridge requires two aircraft to perform testing. Likewise, Schroeder does not include a missile simulation and also does not disclose testing using a single aircraft. Thus, the behavior of the missile can not be simulated using only a single aircraft. Therefore, even if Eldridge and Schroeder were combined, the result cannot be used for testing of an aircraft weapon system using only a single aircraft, as is required, for example, by claim 18.

Likewise, as for claim 18, claims 23 and 27 require a missile simulator in a single aircraft connected to an aircraft weapon system, which provides the capability to test the aircraft weapon system using only the single aircraft and without using an actual missile.

Thus, the combination of Eldridge and Schroeder still does not disclose these required elements of claims 18, 23, and 27. Therefore, claims 18, 23, and 27, and claims 20, 21, 24-25, and 28-30, which depend therefrom, are not obvious over Eldridge in view of Schroeder.

The applicant respectfully submits that the present invention, according to claim 22 and 26, is not unpatentable over Eldridge in view of Schroeder, and further in view of Phillips. Phillips teaches a method of modeling a feedback control system comprising time discrete signals, but makes no mention of techniques used in the positioning of target seekers. Phillips does not disclose or suggest a missile simulator in a single aircraft connected to an aircraft weapon system, generating a target seeker command position for a simulated target seeker, simulating behavior of the missile in a computer model in the missile simulator, which is in the single aircraft, to generate an actual value signal adapted to the weapon system, using the trouble signal as a control signal for the simulated target seeker, etc.

Thus, the combination of Eldridge, Schroeder, and Phillips still does not disclose these required elements of the present invention. Therefore claims 22 and 26, which depend from claims 18 and 23, respectively, are not obvious over Watson in view of Batchman and further in view of Phillips.

Each of the claims now pending in this application is believed to be in condition for allowance. Accordingly, favorable reconsideration of this case and early issuance of the Notice of Allowance are respectfully requested.

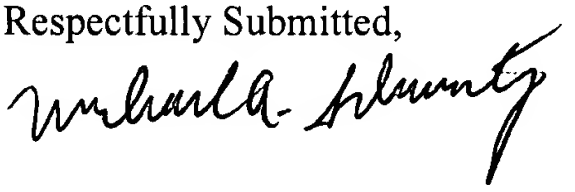
Additional Fees:

The Commissioner is hereby authorized to charge any insufficient fees or credit any overpayment associated with this application to Deposit Account No. 50-4047 (25880.0039).

Conclusion

In view of the foregoing, all of the Examiner's rejections to the claims are believed to be overcome. The Applicants respectfully request reconsideration and issuance of a Notice of Allowance for all the claims remaining in the application. Should the Examiner feel further communication would facilitate prosecution, he is urged to call the undersigned at the phone number provided below.

Respectfully Submitted,



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